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SPECIFICATION FOR STEERING GEAR

PART II HAND HYDRAULIC STEERING GEAR

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SPECIFICATION FOR STEERING GEAR

PART II HAND HYDRAULIC STEERING GEAR

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Indian Standard

SPECIFICATION FOR STEERING GEAR

PART II HAND HYDRAULIC STEERING GEAR

0. FOREWORD

0.1 This Indian Standard (Part II) was adopted by the Indian Standards Institution on 30 July 1982, after the draft finalized by the Inland and Harbour Craft Sectional Committee had been approved by the Marine, Cargo Movement and Packaging Division Council.

0.2 This standard is one of the series of Indian Standards on steering gears for inland and harbour crafts. Part I of this standard covers values of torques. Subsequent parts shall include chain type hand steering gear and spindle type hand steering gears.

1. SCOPE

1.1 This standard (Part II) covers general requirements concerning the design, mechanical fittings and testing for hand hydraulic steering gear installed in crafts for operation on inland waters and harbour limits extending to inland zone as defined and governed by *Indian Steam Vessels Act*, 1917. This standard is applicable only for conventional rudders.

2. REQUIREMENTS

2.1 Design

2.1.1 The design torque at the rudder stock shall be sufficient to put the helm from hard over to hard over (35° port to 30° starboard or vice versa) is not more than 28 seconds and with not more than 7 turns of the steering in case of conventional rudder.

2.1.2 The steering gear shall be capable of developing the design torque in all operating conditions, as specified by the owner.

2.1.3 The system should ensure smooth and silent operation and easy handling by the helmsman even in the astern movement. The torque required to operate the steering wheel shall be not more than 37·5 N_m.

NOTE — This value of torque has been estimated on the basis of human efforts of 150 N and steering wheel radius of 25 cm.

2.1.4 There shall be provision of hydraulic lock and relief valve so that human effort in any condition of operation does not exceed 150 N.

2.2 Mechanical Fittings

2.2.1 *Hand Pump* — The hand pump shall preferably incorporate an integral oil replenishment tank.

2.2.2 *Hydraulic Lock* — The transmission system shall be provided with an oil lock system in order to hold the wheel at any position and to stop the back pressure from rudder reaching the steering wheel. The oil lock shall open immediately and automatically when wheel is turned and closing again when the wheel is stopped.

2.2.3 *By-pass Valve* — The system shall be provided with a by-pass valve to facilitate the incorporation of an emergency steering arrangement.

2.2.4 *Relief Value* — The system shall be provided with a relief value in order to avoid damage to the steering system created in extreme bad weather.

3. TESTING

3.1 The arrangement for testing shall be similar to the onboard arrangement of steering gear.

NOTE — An Indian Standard Specification for shop testing for steering gear is under preparation.

3.2 The design, construction, manufacture and performance characteristics of the steering gear shall be tested for approval by the statutory body/ classification societies, as applicable.